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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 09/823,159 | 03/30/2001 | Sheng Zhao | 871.0013USU | 8117 |

29683 7590 05/14/2004

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| EXAMINER | |
|---|---|
| PATEL, NIMESH G | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2112 | 10 |

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



4

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/823,159 | ZHAO ET AL. | |
| | Examiner | Art Unit | |
| | Nimesh G Patel | 2112 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *05 March 2004 and 18 March 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-3, 5-11, and 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Earnest('338).

3. Regarding claim 1, Earnest discloses a programmable buffer circuit for interfacing a CPU to a plurality of channel interfaces comprising of a dual port memory(Figure 3, Block 100), an arbitrator for arbitrating access to the dual port memory(Column 3, Lines 53-54; A higher priority channel can interrupt service and therefore would indicate an arbitrator to arbitrate access to the memory.), an address generator for addressing the dual port memory(Column 5, Lines 59-65), and an allocator and control unit for specifying buffer locations for individual channels(Column 3, Lines 3-15).

Earnest discloses multiple dual port memories instead of a single dual port memory. Making something integral, such as multiple memories into a single memory, is not a patentable concept(See MPEP 2144.04.V.B), since a combination of the multiple memories of Earnest into a single dual port memory would operate in the same manner as the dual port memory claimed in the application. Therefore claim 1 is rejected.

4. Regarding claim 3, Earnest discloses an integrated circuit containing a dual port memory, CPU, and plurality of interface channels (Column 2, Lines 45-50).

5. Regarding claim 5, Earnest discloses an interface channel comprising of a serial data interface(Column 5, Line 3).

6. Regarding claim 6, Earnest discloses an interface channel comprising of a packet data interface(Column 5, Lines 4-6).

7. Regarding claim 7, Earnest discloses plurality of channels comprising of receive and transmit interfaces(Column 4, Lines 56-63) and an allocator comprising registers for specifying the starting address and size for each of the receive and transmit interfaces(Column 3, Lines 3-15).

8. Regarding claim 8, Earnest discloses plurality of channels comprising of receive and transmit interfaces(Column 4, Lines 56-63) and a receive buffer of one channel interface to be a transmit buffer of another channel(Column 4, Lines 20-23).

9. Regarding claim 9, Earnest discloses a dual port memory couple to a CPU data bus and to a channel data bus that serves a plurality of channel interfaces(Figure 2), programming a control unit for specifying individual ones of buffer locations and sizes within a dual port memory for the channel interfaces(Column 3, Lines 3-15), and arbitrating for access to the dual port memory(Column 3, Lines 53-54). Earnest further discloses the generation of dual port memory address depending on what channel interface is currently selected and on the specified buffer location and size for that channel interface(Column 7, Lines 28-48).

Earnest discloses multiple dual port memories instead of a single dual port memory. Making something integral, such as multiple memories into a single memory, is not a patentable concept(See MPEP 2144.04.V.B), since a combination of the multiple memories of Earnest into a single dual port memory would operate in the same manner as the dual port memory claimed in the application. Therefore claim 9 is rejected.

10. Regarding claim 11, Earnest discloses an integrated circuit containing a dual port memory, CPU, and plurality of interface channels (Column 2, Lines 45-50).

11. Regarding claim 13, Earnest discloses plurality of channels comprising of receive and transmit interfaces(Column 4, Lines 56-63) and specifying the starting address and size for each of the receive and transmit interfaces(Column 3, Lines 3-15).

12. Regarding claim 14, Earnest discloses plurality of channels comprising of receive and transmit interfaces(Column 4, Lines 56-63) and a receive buffer of one channel interface to be a transmit buffer of another channel(Column 4, Lines 20-23).

13. Claims 2, 10, and 15-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Earnest('338), in view of Ngai et al.('635), hereinafter referred to as Ngai.

14. Regarding claim 2, Earnest discloses a control unit to be programmable for operating individual ones of channel buffers in FIFO access mode of operation(Column 3, Lines 3-15).

Earnest does not disclose operating channel buffers a block access mode. However, Ngai discloses operating a section of memory in block access mode(RAM mode) and a section of memory in FIFO mode(Column 7, Lines 27-35). Therefore it would have been obvious to use multiple modes of operations, as disclosed by Ngai, in the system of Earnest, since this would better utilize the memory available(Column 1, Lines 36-42).

15. Regarding claim 10, Earnest discloses a control unit to be programmable for operating individual ones of channel buffers in FIFO access mode of operation(Column 3, Lines 3-15).

Earnest does not disclose operating channel buffers in a block access mode. However, Ngai discloses operating a section of memory in block access mode(RAM mode) and a section of memory in FIFO mode(Column 7, Lines 27-35). Therefore it would have been obvious to use multiple modes of operations, as disclosed by Ngai, in the system of Earnest, since this would better utilize the memory available(Column 1, Lines 36-42).

16. Regarding claim 15, Earnest discloses a programmable buffer circuit for interfacing a data processor to a plurality of channel interfaces comprising of a dual port memory(Figure 3, Block 100), an arbitrator for arbitrating access to the dual port memory(Column 3, Lines 53-54; A higher priority channel can interrupt service and therefore would indicate an arbitrator to arbitrate access to the memory.), an address generator for addressing the dual port memory(Column 5, Lines 59-65), and a control unit for specifying buffer locations for individual channels(Column 3, Lines 3-15). Earnest further discloses a control unit to be programmable for operating individual ones of channel buffers in FIFO access mode of operation(Column 3, Lines 3-15).

Earnest discloses multiple dual port memories instead of a single dual port memory. Making something integral, such as multiple memories into a single memory, is not a patentable concept(See MPEP 2144.04.V.B), since a combination of the multiple memories of Earnest into a single dual port memory would operate in the same manner as the dual port memory claimed in the application.

Earnest does not disclose a control unit programmable for operating individual ones of buffers in a block access mode. However, Ngai discloses operating a section of memory in block access mode(RAM mode) and a section of memory in FIFO mode(Column 7, Lines 27-35). Therefore it would have been obvious to use multiple modes of operations, as disclosed by Ngai, in the system of Earnest, since this would better utilize the memory available(Column 1, Lines 36-42). Therefore claim 15 is rejected.

17. Regarding claim 16, Earnest discloses plurality of channels comprising of receive and transmit interfaces(Column 4, Lines 56-63) and a receive buffer of one channel interface to be a transmit buffer of another channel(Column 4, Lines 20-23).

18. Regarding claim 17, Earnest discloses a programmable buffer circuit for interfacing a data processor to a plurality of channel interfaces comprising of a dual port memory(Figure 3, Block 100), an arbitrator for arbitrating access to the dual port memory(Column 3, Lines 53-54; A higher priority channel can interrupt service and therefore would indicate an arbitrator to arbitrate access to the memory.), an address generator for addressing the dual port memory(Column 5, Lines 59-65), and a control unit for specifying buffer locations for individual channels(Column 3, Lines 3-15), where control unit is responsive to operate in a FIFO mode(Column 3, Lines 3-15).

Earnest does not specifically disclose four transmit registers allocated for each channel designated as BaseReg0, BaseReg1, SizeReg0, and SizeReg1 and four receive registers also designated as BaseReg0, BaseReg1, SizeReg0, and SizeReg1. However, Earnest does show pointers to perform the functions of the registers BaseReg0, BaseReg1, SizeReg0, SizeReg1(Column 7, Lines 16-47; For Transmit purposes, TxQ_PARMS is used to set the size of the individual buffers, performing the function of the Size registers, and WR_PNTR is used for the starting address of the individual channels, performing the function of the Base Registers.).

Earnest also does not show the control unit operating in block access mode. However, Ngai discloses operating a section of memory in block access mode(RAM mode) and a section of memory in FIFO mode(Column 7, Lines 27-35). Therefore it would have been obvious to use multiple modes of operations, as disclosed by Ngai, in the system of Earnest, since this would better utilize the memory available(Column 1, Lines 36-42). Therefore claim 17 is rejected.

19. Regarding claim 18, Earnest does not specifically show BaseReg1 as a Low Threshold Register and SizeReg1 as a High Threshold register. However, Earnest does show generating a FULL flag(Column 11, Line 40) indicating a High Threshold Register being used and an EMPTY

flag(Column 8, line 58) indicating a Low Threshold Register being used. Therefore claim 18 is rejected.

20. Regarding claim 19, Earnest discloses a programmable buffer circuit for interfacing a data processor to a plurality of channel interfaces comprising of a dual port memory(Figure 3, Block 100), an arbitrator for arbitrating access to the dual port memory(Column 3, Lines 53-54; A higher priority channel can interrupt service and therefore would indicate an arbitrator to arbitrate access to the memory.), an address generator for addressing the dual port memory(Column 5, Lines 59-65), and a control unit for specifying buffer locations for individual channels(Column 3, Lines 3-15). Earnest further discloses a control unit to be programmable for operating individual ones of channel buffers in FIFO access mode of operation(Column 3, Lines 3-15).

Earnest does not disclose a control unit programmable for operating individual ones of buffers in a block access mode. However, Ngai discloses operating a section of memory in block access mode(RAM mode) and a section of memory in FIFO mode(Column 7, Lines 27-35). Therefore it would have been obvious to use multiple modes of operations, as disclosed by Ngai, in the system of Earnest, since this would better utilize the memory available(Column 1, Lines 36-42). Therefore claim 19 is rejected.

21. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Earnest in further view of Begur et al.('649).

22. Regarding claim 4, Earnest does not specifically disclose a channel interface as an audio codec. However, Earnest discloses example data interface circuits and discloses other types of data interface controllers also can be used(Column 5, Lines 2-10). Begur discloses a circuit with plurality of interface channels with an audio codec channel(Column 6, Lines 55-60). Therefore it would have been obvious to one of an ordinary skill in the art to include the audio

codec of Begur in Earnest's system for the purpose of handling an audio stream that needs to be encoded/decoded.

23. Regarding claim 12, Earnest discloses an interface channel comprising of a packet data interface and a serial data interface(Column 5, Lines 4-6).

Earnest does not specifically disclose a channel interface as an audio codec. However, Earnest discloses example data interface circuits and discloses other types of data interface controllers also can be used(Column 5, Lines 2-10). Begur discloses a circuit with plurality of interface channels with an audio codec channel(Column 6, Lines 55-60). Therefore it would have been obvious to one of an ordinary skill in the art to include the audio codec of Begur in Earnest's system for the purpose of handling an audio stream that needs to be encoded/decoded.

24. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Earnest, in view of Ngai, and in further view of Begur.

25. Regarding claim 20, Earnest discloses an interface channel comprising of a packet data interface(Column 5, Lines 4-6).

Earnest does not specifically disclose a channel interface as an audio codec. However, Earnest discloses example data interface circuits and discloses other types of data interface controllers also can be used(Column 5, Lines 2-10). Begur discloses a circuit with plurality of interface channels with an audio codec channel(Column 6, Lines 55-60). Therefore it would have been obvious to one of an ordinary skill in the art to include the audio codec of Begur in Earnest's system for the purpose of handling an audio stream that needs to be encoded/decoded.

***Response to Arguments***

Applicant's arguments with respect to claims 1-14 have been considered but are moot in view of the new ground(s) of rejection. In regards to the new claims 15-16, see the rejection above.

***Conclusion***

26. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nimesh G Patel whose telephone number is 703-305-7583. The examiner can normally be reached on M-F, 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark H Rinehart can be reached on 703-305-4815. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Nimesh G Patel
Examiner
Art Unit 2112

NP NP
May 6, 2004

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